USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Title: Management of Purple Loosestrife (Lythrum salicaria) in Connecticut Watersheds

Duration: March 1, 1999 through February 29, 2000

Federal Funds Requested: $ 5,000

Non-Federal (matching) Funds Pledged: $ 3,011

Principal Investigators: Donna R. Ellis and Richard A. Ashley, University of Connecticut; David Askew, Tolland County Soil and Water Conservation District; Sigrun Gadwa, Quinnipiac River Watershed Association

Congressional District: 2nd

Statement of Critical Regional or State Water Problems

Purple loosestrife [Lythrum salicaria L. (Lythraceae)] is an invasive non-native plant from Eurasia that was introduced into North America almost 200 years ago. The largest occurrences of this species are found in wetlands in the northeastern U.S., and include all major river watersheds. Recent surveys in Connecticut have documented purple loosestrife in many wetland habitats, including rivers, lakes, streams, ponds, tidal areas and wet meadows. Purple loosestrife aggressively outcompetes and displaces native wetland vegetation such as cattail, sedge, and bulrush. Accompanied by this significant loss of native plant diversity, few species of wildlife are supported, a reduction in stopover sites along bird migratory pathways occurs, and valuable natural resources in wetland ecosystems are destroyed. The rapid spread of purple loosestrife may encroach on croplands, hay meadows and forage pastures, thus having a measured impact on agriculture. Purple loosestrife quickly overtakes and dominates disturbed areas, which may impede or prevent successful wetland creation, enhancement and restoration. Desirable food plants for waterfowl and other wildlife are eliminated when purple loosestrife dominates waterways. These waterways become clogged and water flow is impeded in irrigation systems where purple loosestrife infestations become established.

Purple loosestrife is officially recognized as a noxious weed in 21 states, where its importation and distribution are prohibited. Physical and chemical methods to manage purple loosestrife infestations are often cost-prohibitive and labor-intensive, providing temporary relief at best to curb the spread of this invasive species. Biological control is recommended as a long-term management strategy to reduce populations of purple loosestrife. Watershed and natural resource managers, park supervisors, wetland property owners, and agencies or individuals seeking methods to reduce purple loosestrife infestations in wetlands are interested in obtaining strategies they may implement to conserve wetland resources, improve water quality and restore vegetative diversity in these ecosystems.

Statement of Results or Benefits

Results from this project will be utilized to further develop biological control methods and other strategies for broader application by cooperators with an interest in managing purple loosestrife on federal, state, municipal or private wetlands in Connecticut. Management of purple loosestrife through these methods, followed by judicious documentation of project results and publication in peer-reviewed journals, may serve as a model for management programs on other invasive plant species.

The use of biological control on purple loosestrife is recommended as a sustainable, cost-effective management strategy to reduce populations of this invasive, introduced plant in wetland habitats in Connecticut. The release of biological control agents may reduce the amount of labor required and lower the cost of maintaining wetland sites over the long term. The reduction of chemical inputs from fewer herbicide applications may alleviate environmental impacts on native plant and animal species and improve water quality. Biological control of purple loosestrife may ultimately be one component of an integrated management program in wetlands to effectively reduce purple loosestrife populations and restore the diversity of native plant and animal species that once coexisted in these habitats.

Nature, Scope and Objectives of the Research Proposal

A demonstration project is proposed to field test a hypothesis on changes in the occurrence and distribution of purple loosestrife in Connecticut watersheds through biological control and other management strategies. Field studies will continue to build on purple loosestrife control methods currently being developed in the state, in conjunction with national program efforts. Research results obtained through the study will be disseminated to state cooperators, local end-users and the general public. Methods will be applied to pilot programs for volunteer citizens in soil and water conservation districts, watershed associations and municipalities to more effectively control the spread of purple loosestrife. Purple loosestrife biological control awareness will increase for cooperators and the general public as a result of the proposed activities. Through this process, changes in the occurrence and distribution of purple loosestrife and associated plant species will be documented through judicious monitoring and evaluation of new and established wetland study sites.